CLAIMS:

1. A method for controlling and removing dust and other fine particles in a material, comprising

i) electrostatically charging carrier particles in powder form to give the carrier particles a minimum charge to mass ratio of

+/-1 X 10^{-4}C/kg,

ii) delivering the electrostatically charged carrier particles to the material, whereby the dust and other fine particles in the material agglomerate with the charged carrier particles and

iii) removing the resultant agglomerates from the material (for example by vacuuming or brushing).

2. A method as claimed in Claim 1 in which the electrostatically charged carrier particles are powder particles formed from celite, maize, cyclodextrin, polyvinylpyrrolidone, polyester, nylon, calcite treated with oils, polyvinyl chloride, polytetrafluoroethylene, polystyrene, polycarbonate, polyimides, tannic acid immobilised on polyvinylpyrrolidone beads or wax materials.

3. A method as claimed in Claim 1 or Claim 2 in which the electrostatically charged particles have an average particle size in the range of from 10 to 500μm.

4. A method as claimed in Claim 3 wherein the electrostatically charged particles have an average particle size in the range of from 100 to 300μm.

5. A method as claimed in any one of the preceding claims wherein the material is a carpet or fabric material.

6. A method as claimed in any one of the preceding claims in which the electrostatically charged carrier particles are agitated on the surface of the material after application thereto.

7. A method as claimed in any one of the preceding claims in which the charge to mass ratio of the carrier particles is in the range of from $\pm 1 \times 10^{-4}$ C/kg, to $\pm 1 \times 10^{-3}$ C/kg.

8. A method as claimed in any one of the preceding claims in which the surface of the material is agitated, in order to ensure that the dust and small particles agglomerate with the charged carrier particles at the same time as (or after) the electrostatically charged carrier particles are applied to the material.

9. A method as claimed in Claim 8 in which agitation is carried out at the same time as the electrostatically charged particles are delivered to the material, or as an intermediate agitation step between delivery of the electrostatically charged carrier particles and their final removal, or during the final removal step.

10. An apparatus for delivering electrostatically charged particles to a material, the apparatus comprising

a) a container, in which particles to be electrostatically charged are stored and

b) means for delivering the particles from the container to the carpet or fine fabric material, the delivery means comprising

i) a tube or pipe for delivering the carrier particles to the material; and

ii) means for expelling particles at high velocity from the container to the material;

the tube or pipe being made of such a material that, when the carrier particles are passed down the delivery tube at high velocity, a minimum charge to mass ratio of +/- 1 X 10^{-4}C/kg is imparted to the particles by the frictional contact of the particles on the inside of the tube or pipe.

11. An apparatus as claimed in Claim 10 in which the material from which the tube of the apparatus is made is selected from

perforated polyethylene
unperforated and perforated polyvinyl chloride
unperforated and perforated nylon and,
unperforated and perforated PTFE.

12. An apparatus as claimed in Claim 10 or Claim 11 in which the means for expelling particles at high velocity from the container to the material is driven by compressed air, or by the action of suction effect of a vacuum cleaner.

13. An apparatus as claimed in any one of Claims 10 to 12 in which the wall of the tube is formed with holes.

14. An apparatus as claimed in any one of Claims

10 to 13 in which the charging region of the tube or pipe is located within the container.

15. An apparatus as claimed in any one of Claims 10 to 14 in which the tube or pipe can be stored in the container and moved out of the container for delivering charged carrier particles.

16. A method as claimed in any one of Claims 1 to 9 in which the means for delivering the particles is an apparatus as claimed in any one of Claims 10 to 15 in which

i) when the tube is made of perforated polyethylene, the carrier particles are tannic acid immobilised on polyvinyl-pyrrolidone beads;

ii) when the tube is made of perforated and unperforated PVC, the carrier particles are selected from nylon, polyvinylpyrrolidone, tannic acid immobilised on polyvinyl-pyrrolidone beads, maize, calcite treated with oils and celite;

iii) when the tube is made of perforated and unperforated nylon, the carrier particles are selected from polyester, polyvinyl-pyrrolidone, tannic acid immobilised on polyvinylpyrrolidone beads, cyclodextrin, and calcite, untreated or treated with oils; and

iv) when the tube is made of polytetrafluor-ethylene, the carrier particles are selected from nylon, polyvinyl pyrrolidone, tannic acid immobilised on polyvinylpyrrolidone beads, cyclodextrin and calcite, untreated or treated with oils.

17. A method of dispensing charged particles to a surface from a container which contains uncharged particles, which method comprises the steps of:

entraining the particles in a stream of gas;

directing the stream of gas and entrained particles through a tube or pipe capable of imparting to the particles a minimum charge to mass ratio of +/- 1 X 10^{-4}C/kg, by frictional contact of the particles with the inner surface of the tube or pipe; and directing the stream of gas and entrained charged particles to a surface;

wherein a mixture of particles of at least two different materials is employed, the particles of a first material being capable of assuming, on charging, a charge of a particular polarity and the particles of a second material being capable of assuming, on charging, a charge of the opposite polarity to that of the first particles.

18. A method of dispensing charged particles to a surface from a container which contains uncharged particles,

which method comprises the steps of entraining the particles in a stream of gas;

directing the stream of gas and entrained particles through a tube or pipe capable of imparting to the particles a minimum charge to mass ratio of +/- 1 X 10^{-4}C/kg, by frictional contact of the particles with the inner surface of the tube or pipe; and directing the stream of gas and entrained charged particles to a surface;

wherein the tube or pipe includes a plurality of holes therein which are dimensioned so as to allow for electrical discharge through the holes, without allowing gas flow through the holes to the extent that

the velocity of the stream of gas which entrains the particles is substantially reduced.

19. A method as claimed in claim 18 wherein the holes each have a diameter of less than 5 micrometres.

20. A method as claimed in any one of claims 17 to 19 wherein the tube or pipe is arranged within the container containing the particles in order to facilitate frictional contact of the particles with the inner surface of the tube or pipe.

21. A method as claimed in any one of claims 17 to 20 wherein the tube or pipe is arranged in a non-linear fashion.

22. A method as claimed in claim 21 wherein the tube or pipe is formed as a coil.

23. Apparatus for dispensing charged particles, which apparatus comprises:

a container for housing the particles to be dispensed;

a tube or pipe capable, in use, of imparting to the particles a minimum charge to mass ratio of +/- 1 X 10^{-4}C/kg by frictional contact of the particles with the inner surface of the tube or pipe; and

means for entraining the particles in a stream of gas and directing the stream into the tube or pipe;

wherein the tube or pipe is arranged within the container in order to facilitate frictional

charging of the particles by contact, in use, of the particles with the inner surface of the tube or pipe.

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